

**STTR Topic Number N99-T010
dated 13 April 1999
Proposal Number N99-T0100533**

**Phase I Progress Report
by
Information Extraction and Transport (IET)
&
George Mason University**

30 June 1999

Subject: Multi-variate Manpower, Personnel and Training (MPT) Modeling and Management System,

1. **Introduction:** The objective of the research for this project is to provide technology that greatly enhances the Navy's ability to manage their personnel requirements against the evolving needs of the service. Our approach is to apply multi-attribute utility modeling and Bayesian network technology to fuse information about policy, individual and assignment needs to identify personnel tradeoffs. In the Phase I effort, we intend to model the service member selection variables. There are three tasks proposed to accomplish the Phase I research objective; (1) establish the "success" criteria and variable baseline, (2) develop a prototype model for each objective, and (3) evaluate and document the multi-variate interaction.

2. **Progress to Date:**

George Mason University is now on contract with IET Inc., to work on the STTR.

Initial team planning was conducted during June 1999 in preparation for carrying out the STTR research tasks. This included meeting with George Mason University, represented by Kathryn Laskey, Ph.D., on Thursday, June 24th to collaborate on finalizing a program plan for implementation of the research. Requests for information were also initiated with the Navy Personnel Research and Development Center in Millington, TN to collect background information on the Navy personnel management process, requirements and standards. Contact was also initiated and an appointment set to meet with the Office of Naval Research, the contract funding / sponsoring organization for this STTR. A Phase I task schedule was established. The tasks will be implemented within the following timeline:

Task 1 – Establish "Success" Criteria & Variable Baseline
Research to be conducted July 1-31st

Task 2 – Develop Prototype Model for Each Objective
Research to be conducted beginning on or about July 20th through September 1st

Task 3 – Evaluate and Document Multi-Variate Interaction
Evaluation and documentation to begin on or about September 15th

3. **Plans for Next Reporting Period:** Specific plans are discussed below for each task.

Task 1 – Establish "Success" Criteria & Variable Baseline
Initial variable identification and collection begins during July 1999. The immediate objective is to establish some baseline for what variables are currently considered when selecting or assigning Navy service members. IET will also need to identify what service member type (skill level, pay

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grade, occupation speciality) modeling outcome is of most interest to the ONR customer. An appointment to meet with ONR has been scheduled for July 2nd.

These variables will be incorporated into a basic candidate servicemember model with the assumption that this baseline allows to understand how the Navy selects today.

Other variables as identified in our original STTR prop will be surveyed through (military and military operations research) literature searches and limited interviews. George Mason University will conduct a similar literature search for corporate and private sector experience with longterm personnel management programs. And, in keeping with our theme of modeling the whole person, these searches will include focus on such things as quality of life surveys for military members and military family member and the impact of quality of life and policy impact on the service member. Some or all of these variables will also be considered for inclusion in the prototype model.

Task 2 – Develop Prototype Model for Each Objective

Research to be conducted beginning on or about August 1st through September 15th.

Once variables have been collected, then a prototype model of current practice and the same model with extended variables will be built. A series of interviews and or surveys with Navy personnel will be conducted by both IET and George Mason to determine appropriateness of variables and values that should be assigned within the model. The end result is that, depending upon the desired outcome, the model will produce a ranked order of candidate selection to meet some Navy requirement.

Task 3 – Evaluate and Document Multi-Variate Interaction

Evaluation and documentation to begin on or about September 15th

IET will work with George Mason to evaluate which variables offer the greatest payoff in selecting candidates and the results will be documented in the form of lessons learned.

4. Issues:

The task schedule assumes that we will be able to elicit specific information to make this effort useful to the Navy. There are a number of questions that we need to get answers to in a reasonably expeditious manner to avoid slippage of the schedule:

1) What are the appropriate Navy regulations and personnel management standards that are currently used to acquire, determine appropriate training, and assign seamen? Does the Navy use something similar to the Army's DA Form 2 which is the basic worksheet for logging information used in the career management process?

2) Where can IET get copies of these regulations, standards, and worksheets?

3) Is there a specific category of Navy occupational specialty that should be focused upon, and are there any test cases that IET can acquire of appropriate candidate military members? We proposed using 10 test cases or records in our STTR prop and this is probably a good number to generate some meaningful results.

An initial request for information was sent via email on June 23rd to our nominated POC to get this information, Mr. Murry Rowe, but a response has not been received as of June 30th. A follow-up email was sent on June 30th.